

California Air Resources Board
Update on Innovative Clean Transit (ICT) Discussion Document
March 27, 2018

As part of CARB's standard regulatory process to receive public input during rule making process, CARB staff released the Innovative Clean Transit Discussion Document¹ (the Discussion Document) on December 12, 2017 for public comments and held a regulatory workshop on December 15, 2017.

Staff have received a wide range of comments and suggested modifications. CARB does not have a revised proposal at this time, but would like to indicate where we are likely to propose changes based on this input. The fundamental goal of the regulation is a long-term attainment of a zero-emission transit fleet in California, providing enhanced mobility services to the residents. This goal is consistent with meeting California's health-based air quality standards, actions to further protect communities from air pollution, as well as efforts to reach our greenhouse gas emission reduction targets. Additional comments and information in the areas below will help us identify the best pathway toward meeting this goal.

Transit Progress – California has over 200 transit agencies that vary significantly in terms of the number and types of buses in their fleets, the distance of their routes, terrain and weather over which their buses operate, as well as tight budgets focused on serving their customers. A number of transit agencies have taken a leadership role in advancing battery electric and fuel cell buses. There are over 100 zero emission transit buses in operation in California and over 300 more on order. These leaders include:

- LA Metro, LA DOT, and Foothill Transit, along with four other transit agencies: have made commitments to 100% zero emission bus fleets,
- AC Transit and Sunline Transit: lead the world in fuel cell transit buses, including addressing infrastructure and maintenance issues, and
- Antelope Valley Transit Authority: will be the first 100% zero emission bus fleet later this year.

Taking on this early commitment requires additional effort on the part of the transit agencies, and has been done in combination with state and local funding partners, utilities, and others. Staff wishes to recognize these leadership efforts as part of our proposal. A full list of transit agencies and their progress at implementing zero emission vehicles is available at <https://arb.ca.gov/msprog/ict/ict.htm>.

Regulation Starting Date – Several comments indicated that requiring 25 percent of bus purchases to be zero emissions starting in 2020 is too early. This is especially true since many fleets would have needed to make purchases prior to 2020 to maximize their incentive eligibility. Successfully deploying zero-emission technologies involves

¹ Innovative Clean Transit Regulation Discussion Document, December 15, 2017, Last assessed 3/6/2018, <https://arb.ca.gov/msprog/ict/meeting/mt171215/171215ictconcept.pdf>

planning the zero emission bus procurement with the appropriate infrastructure buildout. Extending the timeline can help transit agencies secure funding, have infrastructure in place when vehicles are delivered, and develop a workforce capable of operating and maintaining zero-emission buses. The California Transit Association has recommended each transit agency develop and submit an individualized plan, approved by their board, for a transition to zero emissions, including their start date. We think these plans outlining a strategy for transitioning to a zero emission transit fleet an important element of the overall approach described here. Allowing transit agencies additional time to plan and strategize a technology roll out based on their unique opportunities and challenges has some advantages for a smoother roll-out.

While staff is interested in proposing additional time, zero emission buses are available and viable today. Staff is seeking comment on the timing and best strategy to provide additional time for a successful start while encouraging near-term action.

Role of Incentives – It has been CARB’s intent to structure a proposal that provides sufficient time and opportunities for transit agencies to access funding and to deploy zero emission buses in a manner that is consistent with a normal bus purchase schedule. Staff recognizes there are upfront costs associated with deploying zero-emission bus technologies and that funding programs are a key part of the transition. Incremental costs for zero emission buses have been declining and are expected to continue to decline as the market grows and matures. We are interested in comments on how to find the right balance to ensure that there is early action and market certainty that all transit fleets make adequate progress in expanding the zero emission bus fleet, and that transit agencies have adequate access to funding.

Federal, state and local funding programs, including CARB-administered Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project (HVIP), play an important role in early stages of regulation implementation to provide a smooth transition for transit agencies’ costs. A minimum of \$35 million of HVIP funds has already been allocated for public transit buses this fiscal year. CARB has also increased the amount of incentives per bus by about 50 percent and allocated additional funding for charging and fueling infrastructure.

Overall Cost– CARB staff, transit agencies, and other stakeholders have worked collaboratively to develop cost models for the implementation of zero emission transit buses. Battery electric buses have higher upfront costs than natural gas or diesel buses, but their operational costs can provide significant savings over the life of the bus. Characterizing the costs is an essential part of this regulatory effort. Staff will release a document shortly for comment that details its conclusions from this process. Staff’s preliminary conclusions are consistent with those of an independent study recently published by the University of California Davis, which broadly determined that: 1. lifecycle costs of battery electric buses are currently comparable to combustion buses if incentives are included; and 2. future lifecycle costs are expected to be beneficial with incentives.

Cutaways and Non-Standard Buses – The staff proposal includes all buses with a gross vehicle weight rating greater than 14,000 lbs. after they have completed Altoona testing. This criteria was intended to ensure that testing required for buses to be purchased with federal formula funds is completed before any ZEB purchase would be required. Several comments ranged from adding additional criteria before including cutaway buses in the regulation to excluding them from the scope of the regulation entirely. We agree the priority should be to focus near term electrification efforts on larger buses that are already available from multiple manufacturers. However, cutaways are about 25 percent of the overall transit fleet and staff are interested in determining how to meet the long term goal of zero emission for all bus types as the market matures. Staff will propose to eliminate cutaways from the initial implementation requirement and is seeking comment on the appropriate timing to start including cutaways or suggestions for metric thresholds to determine readiness.

As of now, there is no zero-emission cutaway that is Altoona tested and it is unclear when manufacturers will begin testing for zero emission cutaway buses and what the vehicle capabilities will be in the future. Once available and tested, transit fleets also want to have more information about range, reliability, weight distribution and viability in revenue service before purchasing any bus in significant numbers.

Regulatory Assessments – Staff recognizes that transformation of the transit fleet to 100 percent zero emissions has a number of hurdles. These include cost reductions, battery improvement, infrastructure, electricity rate structure, technician training, etc. CARB is confident there is a path to address these issues. Nonetheless, it is appropriate to continue to work with transit agencies and other stakeholders to assess the improvements and adjust the regulation if necessary. This is a common practice for CARB regulatory efforts. Staff has received a wide variety of comments on the structure for such an assessment and approach for possible adjustments, if necessary. These include the use of on-ramps (increased regulatory requirements that activate when certain thresholds are met), off-ramps (waiver or decreased requirements in specific circumstances), periodic regulatory reviews, and staggered or separate regulations. Staff is inviting specific comments on the best way to structure this needed flexibility while also providing regulatory certainty.

Conclusion – CARB is committed to work with California’s diverse transit agencies and other stakeholders to develop a win-win proposal that can transform the transit fleet to the cleanest possible technology while doing so in a way that benefits the transit agency and its riders. Stakeholders’ input continues to provide important insight to help achieve our shared goal of clean transportation. Please [submit your comments](#) on the ICT regulatory concept to CARB using the designated comment link, so that CARB staff can consider them before the next workshop. Staff is in the process of organizing another regulatory workshop in April 2018 to discuss a revised proposal at that time. Please send other questions regarding the regulatory concept to Ms. Shirin Barfjani at Shirin.Barfjani@arb.ca.gov.